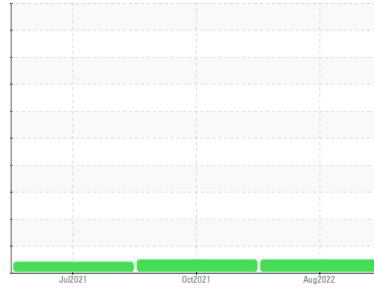




OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Area
FRONTIER II [200006776]
 Machine Id
55WEA86931
 Component
Wind Turbine Gearbox
 Fluid
FUCHS RENOLIN CLP ISO 320 (--- LTR)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		NX05630010	NX05391879	NX008630
Sample Date	Client Info		29 Aug 2022	09 Oct 2021	12 Jul 2021
Machine Age	hrs	Client Info	0	0	0
Oil Age	hrs	Client Info	0	0	0
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			NORMAL	NORMAL	ABNORMAL

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184	>80	11	20	17
Iron	ppm	ASTM D5185m	>150	15	10
Chromium	ppm	ASTM D5185m	>5	0	0
Nickel	ppm	ASTM D5185m	>10	0	<1
Titanium	ppm	ASTM D5185m		0	0
Silver	ppm	ASTM D5185m		0	0
Aluminum	ppm	ASTM D5185m	>10	0	0
Lead	ppm	ASTM D5185m	>20	<1	<1
Copper	ppm	ASTM D5185m	>50	<1	<1
Tin	ppm	ASTM D5185m		0	<1
Antimony	ppm	ASTM D5185m		---	0
Vanadium	ppm	ASTM D5185m		0	0
Cadmium	ppm	ASTM D5185m		0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		0	14
Barium	ppm	ASTM D5185m		<1	0
Molybdenum	ppm	ASTM D5185m		0	0
Manganese	ppm	ASTM D5185m		<1	<1
Magnesium	ppm	ASTM D5185m		0	<1
Calcium	ppm	ASTM D5185m		17	17
Phosphorus	ppm	ASTM D5185m		197	89
Zinc	ppm	ASTM D5185m		4	0
Sulfur	ppm	ASTM D5185m		4598	3996

CONTAMINANTS

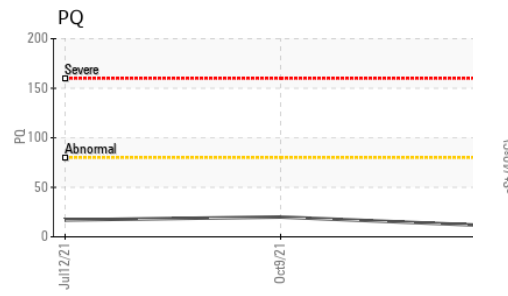
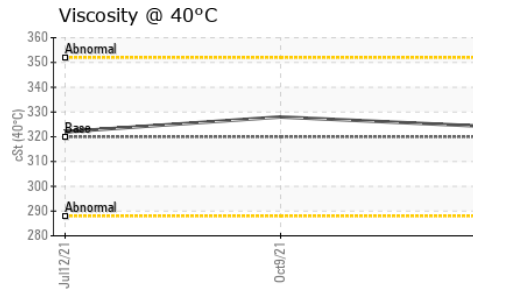
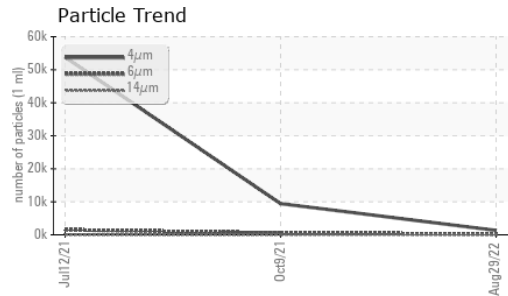
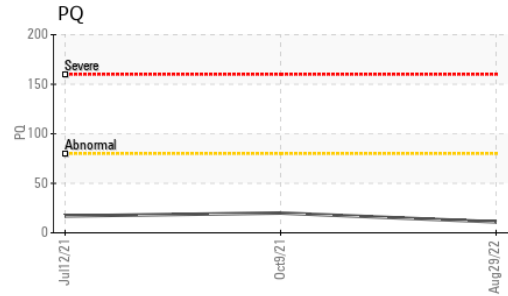
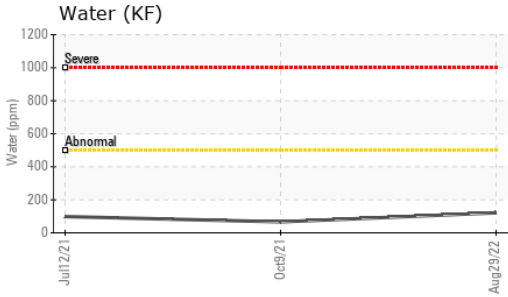
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	9	8
Sodium	ppm	ASTM D5185m	>20	3	2
Potassium	ppm	ASTM D5185m	>20	0	<1
Water	%	ASTM D6304	>0.05	0.012	0.006
ppm Water	ppm	ASTM D6304	>500	121.0	66.3

FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		1333	9442	53804
Particles >6µm	ASTM D7647	>2500	222	523	▲ 1507
Particles >14µm	ASTM D7647	>320	22	25	16
Particles >21µm	ASTM D7647	>80	8	3	3
Particles >38µm	ASTM D7647	>20	2	0	0
Particles >71µm	ASTM D7647	>4	1	0	0
Oil Cleanliness	ISO 4406 (c)	>--/18/15	18/15/12	20/16/12	▲ 23/18/11



OIL ANALYSIS REPORT

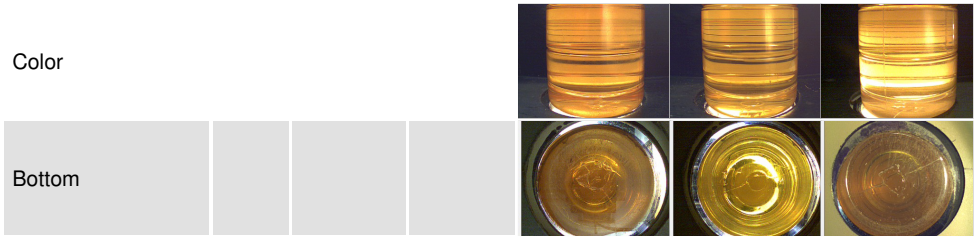


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		0.39	0.425	0.398

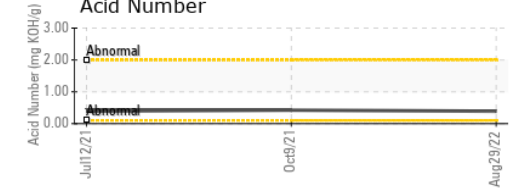
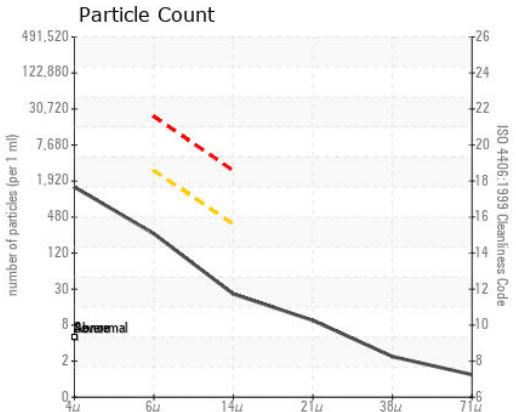
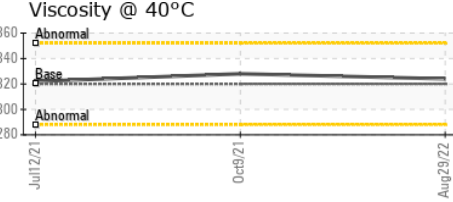
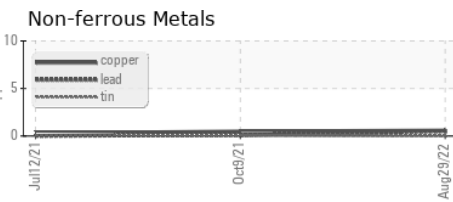
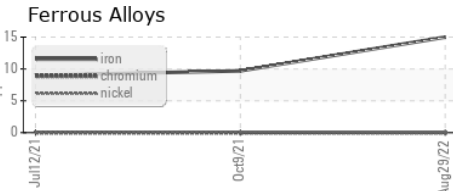
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.05	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	324	328	322

SAMPLE IMAGES		method	limit/base	current	history1	history2
---------------	--	--------	------------	---------	----------	----------



GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : NX05630010 **Received** : 30 Aug 2022
Lab Number : **05630010** **Diagnosed** : 31 Aug 2022
Unique Number : 10114531 **Diagnostician** : Doug Bogart
Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount)

NORDEX USA - Chicago
 300 SOUTH WACKER DRIVE, SUITE 1500
 CHICAGO, IL
 US 60606
 Contact: DEVIN LINEHAN
 DLinehan@nordex-online.com
 T: (312)386-4124
 F: (312)386-7102

To discuss this sample report, contact Customer Service at 1-800-237-1369.
 * - Denotes test methods that are outside of the ISO 17025 scope of accreditation.
 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)